

Atrial Fibrillation: Diagnosis and Options for Treatment



Dr. Shaver

Each year approximately 160,000 people will be diagnosed with atrial fibrillation. Most often striking those over the age of 60, it can be a frightening experience, feeling like the heart could literally pound through the walls of the chest. Symptoms vary, but typically include palpitations, lightheadedness, shortness of breath and fatigue.

Healthy Living magazine gathered together four prominent physicians to discuss the symptoms of atrial fibrillation in addition to options for treatment. The participants were Board Certified Cardiothoracic Surgeon S.N. Mitruka, MD, and Board Certified Cardiologists/ Electrophysiologists Leon Feldman, MD, and Andrew Rubin, MD, Co-Directors of the Cardiac Arrhythmia Program at Eisenhower Smilow Heart Center. Philip Shaver, MD, a Board Certified Cardiologist, moderated the roundtable.

DR. SHAVER: Dr. Rubin, what is atrial fibrillation?

DR. RUBIN: Atrial fibrillation is one of many types of arrhythmias where the electrical conduction of the heart is altered. It is a very erratic, rapid, electrical impulse or impulses from the upper chambers of the heart (the atria) which then transmits to the lower chambers of the heart. The heartbeat becomes erratic, and frequently, very rapid.

DR. SHAVER: Dr. Feldman, who is at risk for atrial fibrillation?

DR. FELDMAN: Atrial fibrillation is an exceptionally common heart rhythm disturbance. It is predominantly a disease of aging, affecting about 10 percent of all people over 80. It is very uncommon in young people without heart disease.

DR. SHAVER: It is estimated that over three million Americans have atrial fibrillation, and it has implications with our aging population.

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DR. FELDMAN: The most important part about atrial fibrillation in the elderly is that it not only makes people feel poorly, but also is a risk factor for stroke.

DR. SHAVER: Dr. Rubin, is it possible that a patient wouldn't know they were in atrial fibrillation?

DR. RUBIN: The majority of the patients have symptoms — palpitations (defined as an awareness of their heartbeat), lightheadedness, shortness of breath or chest pain. There is a significant minority of patients — approximately 15 percent, who do not have symptoms. The symptoms typically occur because of the rapid heartbeat. Patients who have symptomatic atrial fibrillation may also have asymptomatic atrial fibrillation. Once someone's been identified as having atrial fibrillation, we find that they actually have it quite frequently when we do 24-hour heart rhythm monitoring.

DR. SHAVER: One of the greatest burdens to our patients in atrial fibrillation is the role of anticoagulation must undergo. Why give these patients anticoagulation?

DR. RUBIN: Because of the risk of stroke.

DR. SHAVER: Patients will often ask me, "Why can't I just take an aspirin or Plavix® instead of Coumadin®, so I don't have to have my blood tested?" Is that satisfactory?

DR. RUBIN: Aspirin and Plavix are excellent drugs for many different reasons, but for atrial fibrillation, aspirin has been shown, in numerous studies, to be inferior to Coumadin. Plavix has also been shown to be inferior to Coumadin. The use of Coumadin has been associated with at least 70 percent reduction in stroke risk.

DR. SHAVER: One new idea is that a rapid heartbeat due to atrial fibrillation can cause heart failure.

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DR. RUBIN: When a patient takes their pulse in atrial fibrillation they may notice a heartbeat of approximately 60 beats per minute. However, taking a peripheral pulse in your wrist is not accurate. Many of the atrial fibrillation beats are missed. A pulse meter or a home blood pressure monitor is not very accurate. A resting EKG is also not sufficient because it does not reflect what happens when we're walking, shopping or exercising.

Atrial fibrillation can become rapid during these activities, and if undetected, that rapid heartbeat will cause the muscle to weaken. Just like any other muscle with which you exercise and do many repetitions, the heart muscle will fatigue and can result in congestive heart failure.

DR. SHAVER: The good news is that if you control the heart rate and bring it back to normal, the problem is reversible. The two basic tenets of atrial fibrillation treatment are: control excessive heart rate, and anticoagulate to prevent stroke. Let's move on to other therapies that have evolved in the last couple of years that address restoring a normal rhythm. Dr. Feldman, can you define the term "ablation" for us?

DR. FELDMAN: Ablation is a technique that has been around for about twenty years. It is a minimally invasive approach in which a wire or catheter is placed into the heart, usually through a blood vessel in the leg, and the end of the wire can be heated up and a small amount of heart tissue destroyed.

DR. SHAVER: The word "destroy" often gets people's attention. The very limited area of destruction is usually in the area of the conduction system.

DR. FELDMAN: The area of the heart muscle that's affected is very small — usually several millimeters, or fractions of an inch. The area is highly targeted to a focused part of the heart, which is altered to restore a normal heart rhythm.

DR. SHAVER: What is the initial success of ablation in restoring a normal rhythm?

DR. FELDMAN: Initial success tends to be around 50 percent, and between 70 to 80 percent with a second ablation. To put into perspective, we are now seeing efficacy rates with ablation that are better than by medical therapy alone.

DR. SHAVER: Do we know that ablation is successful in the long term?

DR. FELDMAN: This technique is being practiced by multiple centers throughout the world, and we are seeing a variety of approaches. Every center has its own series of steps and techniques. It is a technique that is still evolving. We have between two to five years of follow up data, and an effectiveness rate of 50 to 75 percent.

DR. SHAVER: Moving on to our surgeon, Dr. Mitruka — describe the Maze Procedure.

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DR. MITRUKA: The Maze Procedure was originally developed by Dr. Jim Cox. The procedure involves altering the electrical conduction system by cutting inside the heart, in a very specific pattern, similar to a children's maze; hence the term "Maze" Procedure. When those cuts heal and form scar tissue, the scar tissue acts as a mechanical barrier to the electrical conduction system. In most instances, sinus rhythm is restored.

DR. SHAVER: What are the success rates?

DR. MITRUKA: The early and long-term success rates in Cox's series were on the order of 92 to 95 percent.

DR. SHAVER: When would you typically use the Maze Procedure?

DR. MITRUKA: Here at Eisenhower, we started the Maze program in April of 2002. We have done about 150 Maze operations here, and until recently, it has been a procedure done in patients having bypass surgery or valve replacement or repair surgery.

DR. SHAVER: Is there a minimally invasive surgical approach?

DR. MITRUKA: Recently, we have begun to do minimally invasive, using a thoracoscope. The thoroscopes are basically small telescopes that run along the ribcage below where your upper arm would normally lie. The procedure is done through two 5 millimeter and one 10 millimeter incisions (25 millimeters equals one inch). It's a very effective, very safe, very efficacious procedure to be done with just those three little holes.

Thoracoscopic Maze operations, which are done from the outside of the heart, do not require the use of the heart/lung machine, the heart being stopped, or the chest being opened. "If there's one point to be taken out of any discussion in atrial fibrillation, it is that once you have started Coumadin to prevent stroke, there has to be a very good reason to ever stop it."

DR. SHAVER: You create an area of scar tissue with your catheter external to the heart?

DR. MITRUKA: On the external surface of the heart. It encircles all four of the pulmonary veins, which are the connection between the lungs and the left atrial chamber of the heart. The surgery takes about two hours, and the recovery time is two days.

DR. SHAVER: Dr. Rubin, what is your order of options for treating atrial fibrillation?

DR. RUBIN: In general, the symptoms are important as well as the age of the patient and what other diseases they have. The ability to cure a patient with a catheter based or surgical technique is going to be significantly easier in a younger patient. Overall, I will start patients on an anti-arrhythmic drug if they have symptomatic atrial fibrillation, try to gain a sinus rhythm initially with cardioversion, followed by an anti-arrhythmic drug and repeat cardioversion.

DR. SHAVER: You used the term "cardioversion." Please explain.

DR. RUBIN: The patient is sedated and patches are placed on the patient's chest and back. An electrical current is delivered to stop the abnormal rhythm, and allow the heart to restart and regain the sinus rhythm.

DR. SHAVER: Because atrial fibrillation sometimes occurs silently, should we leave these patients who now have a normal heart rhythm on Coumadin indefinitely?

DR. RUBIN: If there's one point to be taken out of any discussion in atrial fibrillation it is that once you have started Coumadin to prevent stroke, there has to be a very good reason to ever stop it.

DR. SHAVER: Dr. Feldman, what is the order of options you offer patients who come to you with atrial fibrillation?

DR. FELDMAN: First, doing a complete evaluation to see if there's something that's causing the atrial fibrillation that can be corrected.

DR. SHAVER: For example, that's why you always get a thyroid evaluation?

DR. FELDMAN: Even though thyroid dysfunction is a rare cause for atrial fibrillation, it is an eminently correctable cause. It's important to test for thyroid dysfunction, which can be accomplished by a simple blood test.

DR. SHAVER: What does the future hold?

DR. RUBIN: Our dream is that someday there will be a short, minimally invasive procedure that will take care of most of our atrial fibrillation patients. I think that it's not too far off in the future.

DR. SHAVER: I would summarize by stating that this common entity is treated by cardiologists and internists with a special interest in cardiology. Because this field is in a stage of rapid change, it is important that these physicians have access to electrophysiology consultation to keep abreast of new advances in therapy.